

A photograph of a pond with several pink lotus flowers in bloom and many green lily pads floating on the water. The text is overlaid on the center of the image.

Water Supply & Growth Conference

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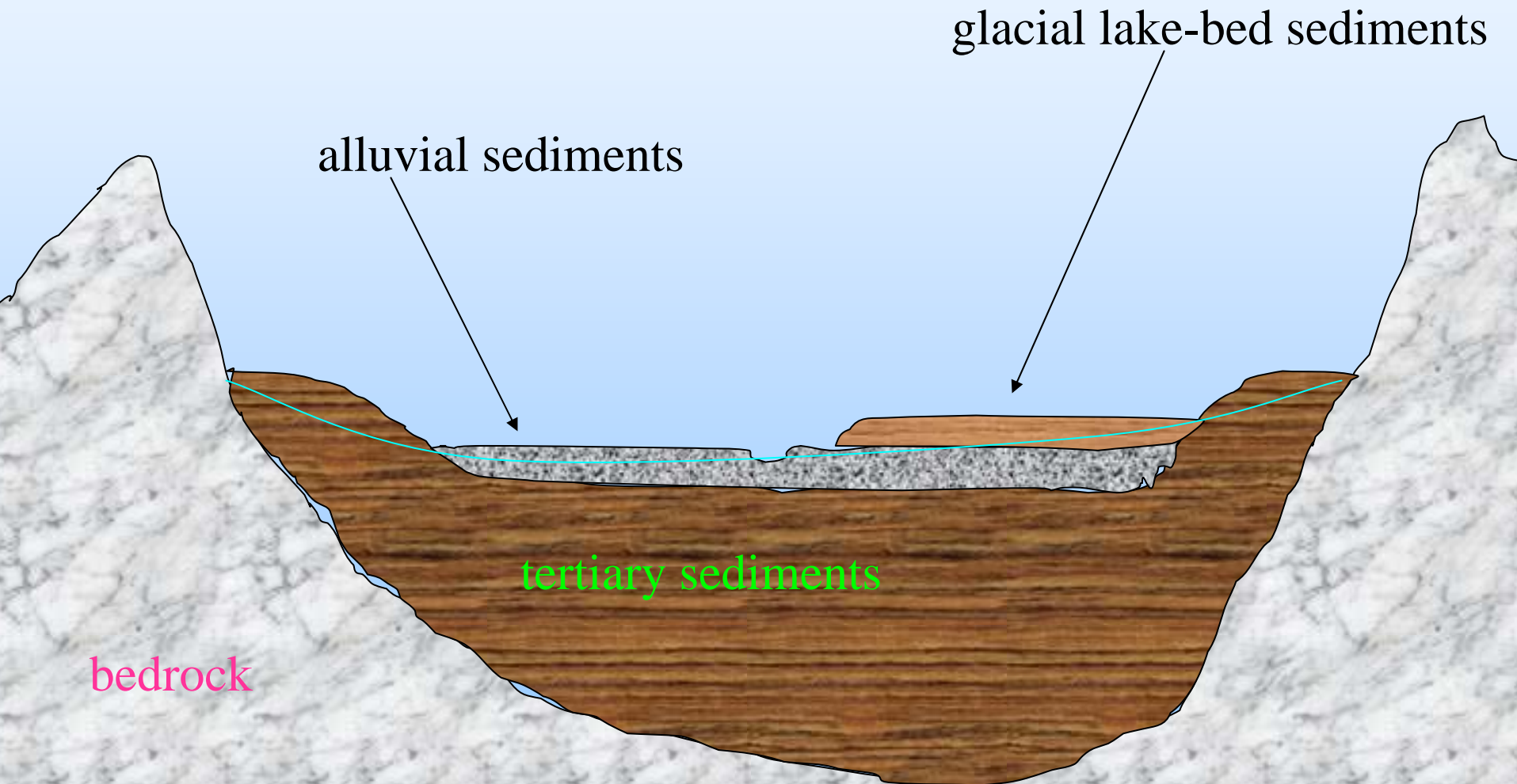
Public Health Infra-Structure In Urban Settings

What is it and why is it needed?

- **Public Water Supplies**
 - To provide safe, regulated, monitored drinking water
 - To provide alternate supply where problems exist
- **Public sewer w/ high level treatment**
 - To protect the aquifer as our sole water supply
 - To reduce impacts on the river
 - To provide for increased treatment when needed
- **Paved Roads**
 - To protect and improve air quality – PM-10
- **Complete streets, trails, & parks**
 - To help stem the obesity epidemic

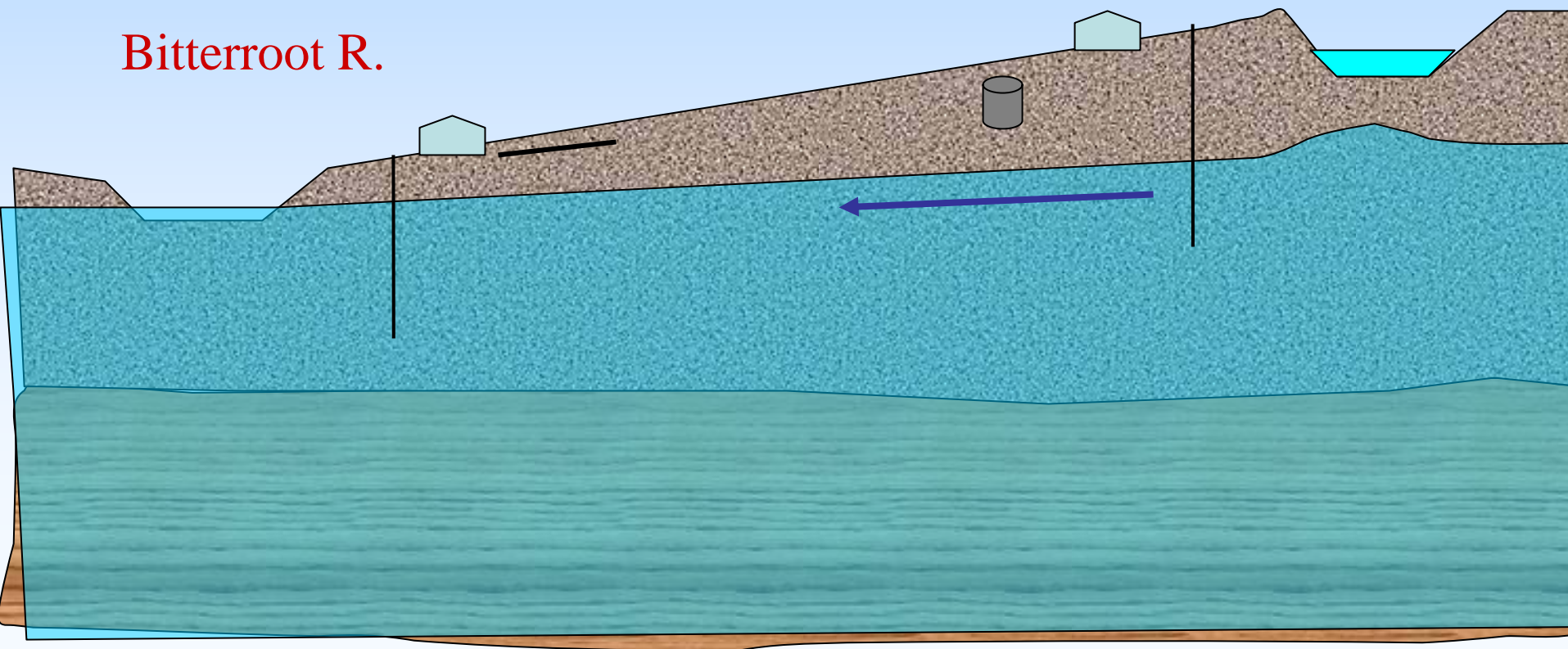
Missoula Valley Hydrology

CROSS SECTION MISSOULA VALLEY

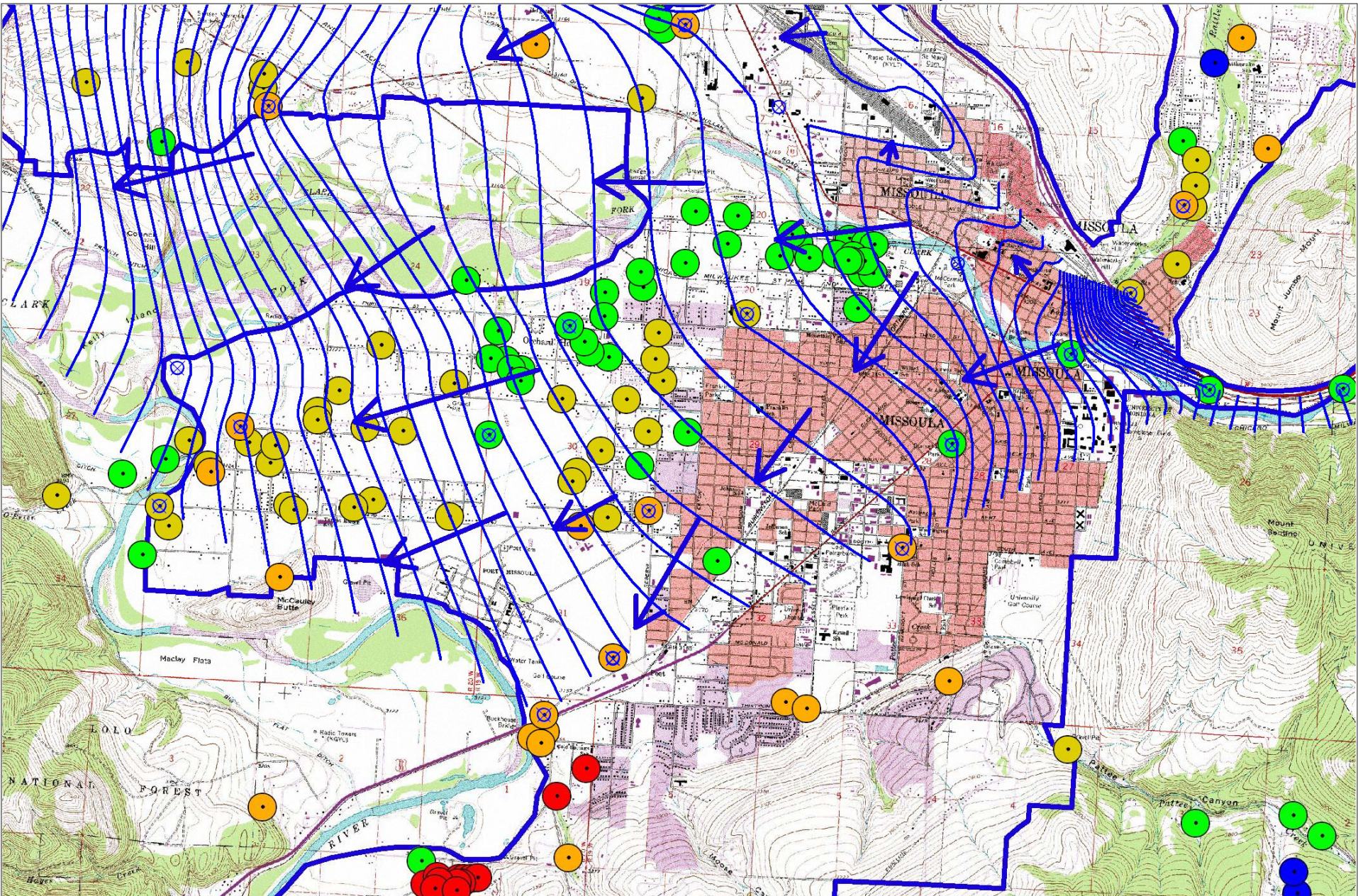


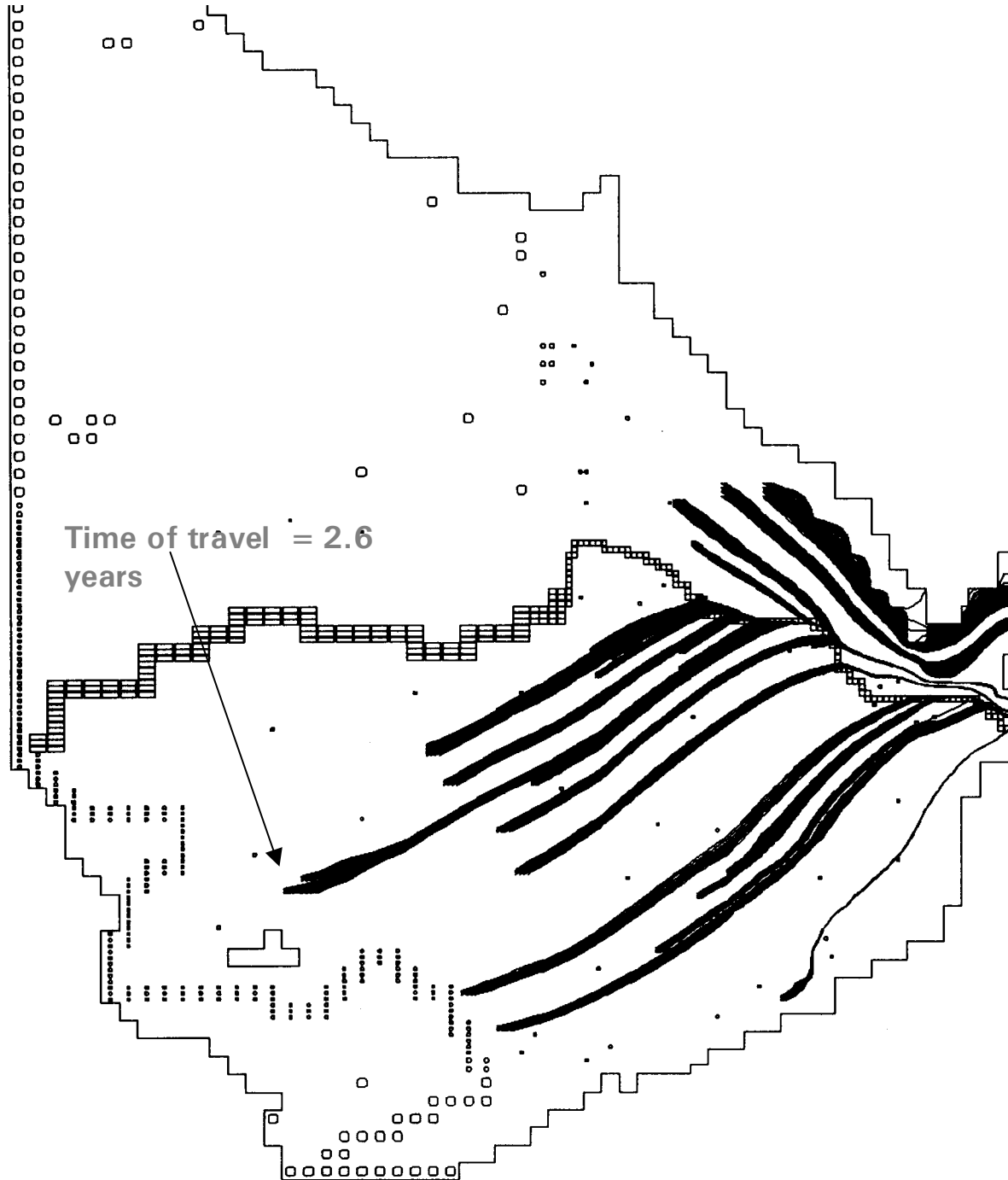
Bitterroot R.

Clarkfork



1996 Nitrate-N Concentrations - Unsewered Area Study





What geologic structures separate Missoula's drinking water supply (Missoula Aquifer) from septic system effluent and other surface contamination?

- Answer: for most parts of the valley, nothing except dilution and depth.
- Conclusion: In an urban setting, it's a bad idea to use the same aquifer for wastewater disposal and drinking water supply

Past and current ground water problems

- Gasoline in wells
- PERC in wells
- Concerns about drugs and drug metabolites in ground water
- Nitrates in wells

Individual wells are often less than ideal.

- Often poorly placed
- Not monitored
- Sometimes poorly constructed
- No alternative supply when contaminated



What is consumptive use?

- Evaporation & transpiration
 - Other “uses” stay in the watershed and eventually end up back in the rivers (although the time of release to surface water is often changed)
 - Transpiration from irrigated lawns and agriculture is the major cause of anthropogenic “consumptive use”
 - As the number of residential units in western Montana grows we should lessen average water use on lawns

Are current Water Rights law
& Sanitation In Subdivision law
working at cross purposes?

- YES!

HOW?

- Allowing a water right for individual wells while requiring a purchased existing right for public wells further encourages developers to use individual wells. (no investment on the part of developers, purchaser often pays for the well)
- Under the Sanitation and Subdivision Act individual water & septic requires 1 acre.
- Result: less safe water and a lot of lawn which results in a lot of consumptive water use.

How can we change water rights and subdivision administration to work in concert?

- Allow a 35 gpm use only on existing parcels
- Require newly subdivided parcels to obtain an existing right when individual wells are used
- Allow public wells to use water where consumptive use is minimal:
 - Making lot size is small e.g. 7200 sq feet
 - Requiring metering and payment for use by quantity
 - Penalties for over use
 - Xeriscaping is substantially used
 - Hard surface runoff is injected rather than allowed to runoff to surface water

Impacts

- Maintains market value of existing water rights
- Minimizes or eliminates consumptive use of water and land
- Discourages sprawl which lowers commute costs and greenhouse gas emissions

One Acre lot – lots of consumptive use



Public water & Public sewer
allow for small lots and much less
consumptive use



One bit of good news!

- The legislative interim Committee on Water has drafted an amendment to the Subdivision and Platting Act that allows local government to require public water in new subdivisions

A Water Quality Problem in the Clark Fork

Clark Fork at
Gold Creek

Filamentous
Algae



Clark Fork near Garrison
Filamentous algae - Cladophora





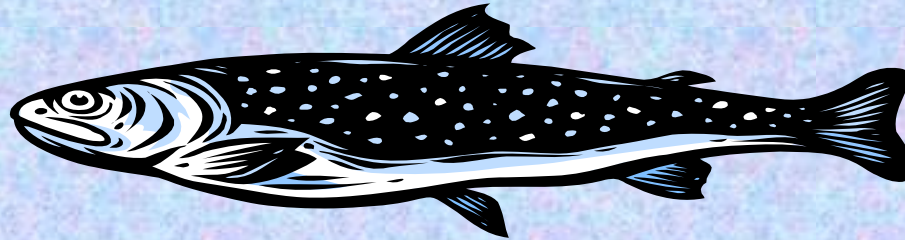
Orange St. – July 03'

Clark Fork at Huson

Diatomaceous Algae



Impacts of excessive algae:



- Degrades aquatic habitats & alters invertebrate communities.
- Depletes dissolved oxygen supplies and contributes to documented low fish populations
- Modifies flows & increases sedimentation in algal beds

1998: VNRP (Voluntary Nutrient Reduction Program) signed giving 10 years to achieve reductions resulting from promised actions.

Signatories: DEQ, EPA, Butte/Silverbow,
City of Deerlodge, City of Missoula
Missoula County, Missoula Health Board, Smurfit-Stone

Missoula County/City Commitments to the VNRP Agreement

- Address septic effluent impact on surface water pollution by:
- Offering incentives to connect to public sewer for existing facilities and new subdivisions;
- Connecting 50% of the existing 6,780 septic systems in the Missoula urban area to sewers;
- Continuing to connect existing septic systems to sewers in the Missoula area at a rate equivalent to the number of new septic systems.

	Area			Population			
	Sq. Mi. 1990		Sq. Mi. 2006	1990	2000		2006 Increase 90-06
City	17		26	42,918	57,053		64,081 21,163
County	2,600		2,600	78,687	95,802		101,417 22,730
Outside City	2,583		2,574	35,769	38,749		37,336 1,567

Population Percentages

City		54.5%	59.6%		63.2%	49.3 %
Outside City		45.5%	40.4%		36.8%	4.3 %